Lennox Generating Station

Community Engagement Report

2025 Operations

ONTARIO POWER GENERATION

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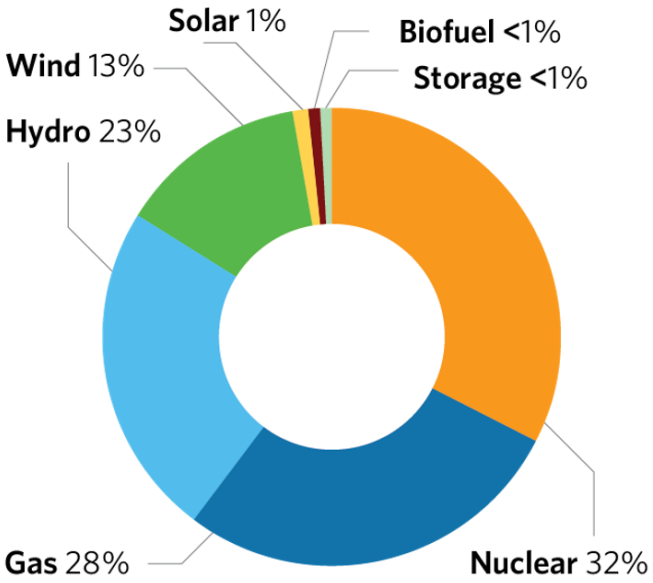
1.0 Who we *are*

Ontario Power Generation (OPG) is the province's largest low-carbon power generator. OPG provides about half of Ontario's electricity through a diverse generating fleet, while investing in local economies and employing more than 11,000 people across the province.

OPG's reliable and low-carbon fleet includes two nuclear stations, 66 hydroelectric stations, two thermal generating stations, and one solar facility,

OPG is a commercial enterprise incorporated under the Business Corporations Act (Ontario) and is wholly owned by the Province of Ontario.

To achieve OPG's vision of electrifying life in one generation, OPG and its family of companies are helping advance the development of new low-carbon technologies, including North America's first fleet of commercial, grid-scale small modular nuclear reactors (SMRs). OPG is investing in the refurbishment of low-carbon and reliable nuclear and hydroelectric generating stations, and building the infrastructure needed to support electrification while keeping rates affordable. OPG is progressing on the strategic goals outlined in their Reconciliation Action Plan, Equity, Diversity, and Inclusion Strategy, and Climate Change Plan. All of what OPG is doing will help Ontario meet increasing demand for electricity and support a growing economy.



Nuclear	12,184 MW or 32%
Gas/Oil	10,551 MW or 28%
Hydro	8,866 MW or 23%
Wind	4,943 MW or 13%
Solar	478 MW or 1%
Biofuel	287 MW or <1%
Storage	451 MW or <1%

2.0 Thermal generation's role in Ontario's *electricity system*

The importance of natural gas in Ontario's electricity grid

As of December 2025, approximately 71% of the transmission connected capacity from Ontario's industrial scale generating assets (not solely OPG) comes from non-emitting forms of power generation[1].

Ontario's energy transition requires refurbishing existing low-carbon electricity assets and building new generation. These large infrastructure projects can take a decade to plan and build. In the interim, we need a bridging solution, and that's where gas comes in.

Natural gas electricity generation protects grid stability because of its flexibility—the units are easy to bring on and off the grid in times when demand is peaking and intermittent renewable generation is unavailable.

The role of Lennox Generating Station

The Independent Electricity System Operator (IESO) is responsible for planning and competitively procuring resources that meet Ontario's power needs today and in the future. The IESO is required by reliability standards to ensure the province has enough resources to meet a minimum total system capacity level.

A reliable grid, backstopped by gas, can enable economy-wide, greenhouse gas emission reduction in a manner that protects electricity ratepayers, maintains grid stability, and doesn't result in the need for a massive, costly overbuild of intermittent (weather-dependent) generation and battery energy storage systems.

Additionally, the ability of Lennox GS to operate on Residual Fuel Oil (RFO) in place of natural gas when needed, further illustrates the need for this unique generating asset to serve as the alternative generating contingency for the natural gas generation reserve in Ontario. Without Lennox GS, the province would have far less risk mitigation capability associated with a fluctuating or unstable energy supply of natural gas. This could result in increased costs, a slower response time, and/or worsen the energy capacity shortfalls in Ontario for the foreseeable future.

Electricity is unlike any other commodity; it must be consumed as soon as it is generated, and supply must exactly meet demand every second, otherwise we risk blackouts.

Regulatory requirements for Lennox GS

Ontario Regulation 419/05 (O. Reg. 419/050: Air Pollution – Local Air Quality), was revised on March 20, 2018. This regulation sets the standards for ground level concentrations of contaminants in Ontario resulting from local sources of air emissions (i.e.: facility emissions).

Pursuant to section 35 of O. Reg. 419/05, with respect to discharges from the Lennox GS facility, the Ministry of Environment, Conservation and Parks (MECP) granted OPG site site-specific air standard approvals with respect to emissions of sulphur dioxide, sulphuric acid, and nitrogen oxide to comply with the regulation.

Table 1 in this section provides the site-specific standard approvals with respect to emissions from these contaminants from the Lennox GS facility.

As part of the approved site-specific standards for Lennox GS, OPG was required to develop Action Plans to reduce facility emissions over 10 years. This Regulatory Compliance Pathway will ensure that Lennox GS operates in compliance with O. Reg. 419/05.

[1] Source: IESO's Media Release "Supply Mix and Generation". IESO (Independent Electricity System Operator) report available at: ***Supply Mix and Generation***

Table 1: Site-specific standards for SO_2, H_2SO_4 and NO_x

Contaminant	Contaminant Chemical Abstracts Service No.	Applicable Time Period	Site-specific Standard (µg/m3)	Site-specific Standard Averaging Period
Sulphur Dioxide (SO_2)	7446-09-5	From the Date of Approval to March 14, 2028	2026	1-hour
		From March 15, 2028, to March 14, 2033	1430	1-hour
Sulphuric Acid (H_2SO_4)	7664-93-9	From the Date of Approval to March 14, 2028	7.6	24-hour
		From March 15, 2028, to March 14, 2033	5.4	24-hour
Nitrogen Oxides (NO_x)	10102-44-0	From the Date of this Approval to March 14, 2033	839	1-hour

3.0 Action plan *status update*

3.1 Action plan progress to date

Action Plan Item 1: Make reasonable effort to procure and operate on natural gas over RFO.

Status: For 2025, power generated by Lennox GS was predominantly through operation on natural gas.

Action Plan Item 2: Purchase RFO with a sulphur content no greater than 0.5%.

Status: RFO with a sulphur content no greater than 0.5% was purchased in 2025.

Action Plan Item 3: Lennox GS's RFO inventory for electricity production with an annual average sulphur content no greater than 0.6% by 2028.

Status: Lennox GS will continue to procure RFO with a sulphur content of 0.5% or lower. The average sulfur content in RFO for 2025 was 0.51%, Table 3 outlines all sulphur concentrations from samples taken during 2025.

Table 2: RFO Purchase Analysis

Shipment	Sulphur Content by Weight (%)	Specific Gravity (g/cm^3)	Calorific Value (kJ/L)
Shipment 1	0.477	0.96	41,978
Shipment 2	0.481	0.95	41,683
Shipment 3	0.481	0.95	41.683
Shipment 4	0.497	0.97	42,019
Shipment 5	0.500	0.97	42,026
Shipment 6	0.500	0.97	41,912
Shipment 7	0.487	0.97	41,852
Shipment 8	0.498	0.97	41,883
Shipment 9	0.496	0.97	41,815
Shipment 10	0.494	0.97	41,963
Shipment 11	0.486	0.97	41,700
Shipment 12	0.495	0.97	41,671

Table 3: Lennox GS bi-weekly RFO tank samples results

2025 Sample Dates	Sulphur Content by Weight (%)	Specific Gravity (g/cm^3)	Calorific Value (kJ/L)
January 8th	0.52	0.98	42,214
January 22th	0.47	0.98	42,293
February 5th	0.52	0.98	42,227
February 19th	0.46	0.98	42,378
March 5th	0.52	0.98	42,261
March 19th	0.52	0.98	42,352
April 2rd	0.54	0.97	42,181
April 16th	0.50	0.98	42,308
April 30th	0.51	0.97	42,340
May 14th	0.48	0.97	42,255
May 28th	0.58	0.98	42,424
June 11th	0.67	0.97	42,455
June 25th	0.56	0.97	42,244
July 9th	0.62	0.98	42,347
July 23rd	0.55	0.97	42,128
August 6th	0.54	0.97	42,269
August 20th	0.52	0.97	42,123
September 3rd	0.48	0.97	42,078
September 17th	0.45	0.97	42,232
October 1st	0.56	0.98	42,313
October 15th	0.48	0.97	42,205
October 29th	0.41	0.97	42,218
November 12th	0.43	0.97	42,307
November 26th	0.45	0.97	42,049
December 11th	0.49	0.97	42,328
December 24th	0.43	0.97	42,161
Average	0.51	0.97	42,257

3.2 Lennox GS operations – emissions summary

Table 4 details the emissions summary of Lennox GS based on actual station operations as reported through the site's Continuous Emission Monitoring system (CEMs). The resulting contaminant ground level concentrations are determined by the maximum station contaminant emission rates throughout 2025, converted to a ground level concentration through use of a conservative dispersion factor. This dispersion factor was derived from the advanced CALPUFF dispersion model used to assess Lennox GS's emissions for the purpose of complying with O. Reg. 419/05.

Simply put, these concentration counts represent a conservative estimation of the number of times Lennox GS emissions could have resulted in ground level concentrations above the defined threshold levels set by the MECP for SO2 and NOx throughout 2025, as required by the facilities Environmental Compliance Approval (ECA) 3847-4HVR3G. For the purpose of complying with O. Reg. 419/05

Table 4: References the SO_2 and NO_x Emission rates and ground level concentrations for Lennox GS in 2025

	2024	2025
Gross power produced on RFO (MWhrs)	10,622	90,023
Maximum 1-hour sulphur dioxide emission rate (g/s)	345	664
Conservative estimate of maximum 1-hour SO2 ground level concentration (ug/m3)	319	613
Average 1-hour sulphur dioxide emission rates (g/s)	42	71
Maximum 1-hour nitrogen oxide emissions rate (g/s)	97	206
Conservative estimate of maximum 1-hour NOX ground level concentration (ug/m3)	90	190
Average 1-hour nitrogen oxide emission rate (g/s)	8	13
Number of predicted 1-hour sulphur dioxide ground level concentrations above:		
100 ug/m3	22	201
320 ug/m3	0	48
690 ug/m3	0	0
Number of predicted 1-hour nitrogen oxide ground level concentrations above:		
400 ug/m3	0	0

For Reference

O. Reg. 419/05 schedule 3 air standards (ground level concentrations ug/m3)

SO_2 1-hour = 100 ug/m^3
NO_x 1-hour = 400 ug/m^3

Lennox GS issued site-specific standards
(replaces O. Reg. 419/05 air standards for facility regulatory compliance)

SO_2 1-hour = 2026 ug/m3 (until 2028) based on the station max SO2 emission rate of 2193 g/s

NO_x 1-hour = 839 ug/m3 (until 2033) Based on the station max NOx emission rate of 911.5 g/s

air standards, the site-specific standards represent the compliance requirements for Lennox GS operations. The ground level concentrations in Table 4 are for public information purposes only.

With reference to Table 4, the maximum and average 1-hour sulphur dioxide emissions from Lennox GS increased in 2025, as compared to 2024. This increase is attributed to Lennox GS operating more frequently in 2025 based on demand.

With respect to NOx, Lennox GS operation on either natural gas or RFO will result in NOx emissions, although NOx emissions resulting from natural gas combustion are less than RFO. Similarly, increased operation of Lennox GS resulted in increase NOx emissions as compared to 2024 operations. Additionally, in 2025, Lennox provided greater peak power outputs in 2025 compared to 2024, resulting in an increase in max 1-hour NOx emissions

rate from the station, with no corresponding conservatively predicted ground level concentrations of NOx above 400 ug/m3.

3.3 Lennox GS ambient air monitoring network

Lennox GS has been working diligently throughout 2025 to execute the MECP-approved ambient air monitoring plan. This plan consisted of installing two ambient air monitoring network stations and a meteorological tower at MECP-approved locations, to assess real-time ground level concentrations of SO2 and NOx. The final locations of ambient monitoring stations were chosen based on areas with an increased frequency of O. Reg. 419/05 Schedule 3 air standard exceedances derived from CALPUFF modeling. Final installation of the monitoring stations and meteorological tower was completed in December 2024 and the units ran for the entirety of 2025. Table 5 provides a summary of the data captured through the ambient air monitoring program, as required by the facility's ECA. There were no concentrations of SO2 or NOx at either station above the reporting thresholds outlined in the ECA.

Table 5: Ambient Air Monitoring Network Data Summary

Data Collection Period	**Dec 1st, 2025 – Dec 31st, 2025**					
Ambient Monitoring Station 57010 "McIntyre Rd Site"	**UTM Zone: 18T**		**353017 East**		**4896280 North**	
SO_2 5-Minute Concentrations (ug/m3)	**Average**	**0**	**Maximum**	**13**	**Minimum**	**0**
Total Count of SO_2 Concentrations ≥ 100 ug/m³, Count = 0 Below is a breakdown of the ambient air monitoring data associated with each hourly average SO_2 Concentration > 100ug/m³						
Total Count of NO_x Concentrations ≥ 400 ug/m³, Count = 0 Below is a breakdown of the ambient air monitoring data associated with each hourly average NO_x Concentration > 400ug/m³						
Ambient Monitoring Station 57009 "Amherst Island Site"	**UTM Zone: 18T**		**362334 East**		**4891616 North**	
SO_2 5-Minute Concentrations (ug/m³)	**Average**	**0**	**Maximum**	**48**	**Minimum**	**0**
Total Count of SO_2 Concentrations ≥ 100 ug/m³, Count = 0 Below is a breakdown of the ambient air monitoring data associated with each hourly average SO_2 Concentration > 100ug/m³						
Total Count of NO_x Concentrations ≥ 400 ug/m³, Count = 0 Below is a breakdown of the ambient air monitoring data associated with each hourly average NO_x Concentration > 400ug/m³						

4.0 Community *engagement*

4.1 Community liaison committee meeting

The second annual Community Liaison Committee (CLC) meeting was held on March 5, 2025, at Lennox GS. Attendees included representatives from:

- Curve Lake First Nations
- Mississaugas of Scugog Island First Nation
- Southeast Public Health
- Lennox and Addington Stewardship Council
- Rotek Environmental Inc.
- C&S Environmental Consulting
- Lennox and Addington Community
- Ontario Power Generation

Provided here is an overview of the presented content and minutes of the CLC meeting, inclusive of questions, responses and action items, as required by the Lennox GS air ECA.

Meeting Title: Lennox Community Liaison Committee Meeting
Location: Lennox Administration Building
Date: March 5, 2025
Time: 1:00 pm to 3:00 pm

Meeting Agenda and Discussion Items:

1. Roundtable Introductions
2. Overview of OPG and the Role of Lennox GS
3. Review of Lennox GS Site-Specific Standards & Environmental Compliance Approval
    - Summary by C&S Grant Environmental Consulting on O. Reg. 419/05 and Lennox site-specific standards
4. Review of Compliance Requirements
    - ***Question from participant:*** Are CLCs a common requirement for ECA's or is this unique to Lennox?

      Response: CLCs are a common requirement for locations with Site Specific Standards. MECP indicated that the CLC requirement was being added due to community interest and feedback during the application process.
5. 2024 Operations Summary
    - Provided review of operations data and 2024 Emission Summary Table.
6. Ambient Air Monitoring Network
    - Outlined Ambient Air Monitoring Network

- *Question from participant:* How long have the stations been collecting data and is there/will there be long term data.

Response: There will be long term data available but since the monitors were installed in Q4 of 2024 there is no long term data yet.

- *Question from participant*: Does MECP provide guidance on where to locate MET towers, similar to monitoring station locations? How does MECP determine where these should be located?

Response: Yes, the MECP provide guidance on MET tower locations and monitoring stations. The station locations selected/approved by the MECP were based on modelling and the frequency of potential exceedances.

- *Question from participant*: What are the meteorological conditions that produce the highest concentrations?

Response: Lake fumigation can have an impact at facilities close to large waterbodies like Lennox. When winds come in off the Lake, usually in warm weather periods from May through summer. These MET conditions usually take place when Lennox is operating infrequently due to it's role in the electricity system.

7. Public Notification System Update

    - ***Question from participant:*** Will the newspaper advertisement being published include information for community members to register for PNS?

Response: An advertisement is to be posted in the local newspaper as well as letters sent to residents of Amherst Island and Eastern portion of Prince Edward County. Sign-up information will also be on the OPG website.

- *Question from participant*: Is the messaging only for SO2 and not NOx?

Response: MECP required only that the Notification system be implemented for SO2, however the NOx concentrations are available to the public on the Ambient Air Monitoring Network Website.

4.2 Public notification system communications

Two continuous ambient air monitoring network systems and a meteorological tower have been installed and a public notification system for the communities in the south of Lennox and Addington have been created.

This initiative was completed to ensure continued compliance under O. Reg 419/05. The MECP determined the locations for ambient air monitoring stations and meteorological tower. The ambient air monitoring stations are designed to collect data for SO2 and NOx, which may originate from the operation of the Lennox Generating Station, or from other sources in the Lennox and Addington area. Information on the ambient air monitoring network stations and real-time data can be viewed on the following webpage: ***https://la.rotekreporting.ca***.

In addition, OPG has implemented a Public Notification System (PNS). The PNS will serve the public by notifying registered members when:

- Lennox Generating Station is operating on Residual Fuel Oil above megawatt thresholds set by MECP.
- Ambient Air Monitoring Stations detect SO2 emissions exceeding thresholds established by the MECP.

If you would like to receive alerts from Lennox's PNS, please register by texting "Start" to 613-777-6476.

4.3 Public inquiries regarding Lennox operations

During the 2025 operations year, there were two public inquiries made regarding observed air emissions on June 25, 2025. Operations were already aware and the issue was subsequently resolved.

Notably, there were no other public inquiries or concerns regarding air emissions from Lennox operations during this period.

5.0 Next *steps*

In 2026, Lennox GS will continue to execute its Action Plans to minimize environmental impact from station operations, while ensuring this unique generating asset is able to produce power when called upon to ensure reliability of Ontario's electricity system.

Table 6: Lennox GS Action Plans

Item	Action Plan	Proposed completion date
1	Make reasonable effort to procure and operate on natural gas over RFO.	Immediately for the entire duration of the site-specific standard.
2	Purchase residual fuel oil with a sulphur content no greater than 0.5%.	Immediately for the entire duration of the site-specific standard.
3	An RFO inventory for electricity production with an annual average sulphur content of 0.6% or lower.	Five years from the date of Approval of this site-specific standard.

Appendix – 1: Lennox GS emissions *summary table* (ESDM)

Table 7 is an excerpt from the annual update to the Lennox GS Emission Summary Dispersion Modelling (ESDM) report and is separated into two halves.

The top half of Table 7 details the emissions summary of Lennox GS operations under the worst-case operating scenario (all units operating at 525 MW each on RFO) aligned with worst case meteorology, according to a 5-year meteorology dataset approved by the MECP. The contaminant points of impingement (POI) under this scenario represent the maximum modelled ground level concentrations, which reflects the site-specific air standards for SO2, NOx and H2SO4 approved by the MECP for Lennox operations.

The bottom half of Table 7 details the emissions summary of Lennox GS operations based on actual station operations as reported through the stations CEM's. The resulting contaminant Point of Impingements (POI) are derived from the maximum station contaminant emission rates as reported through the stations CEMs and converted to a POI through use of a dispersion factor, derived from the advanced CALPUFF model used to

assess the ground level concentrations from Lennox GS emissions.

As such, these POI's represent the maximum ground level concentrations achievable based on actual station operations, assuming the most unfavorable meteorological conditions for the year occurred simultaneously, resulting in a conservative maximum ground level concentration for each assessed contaminant.

Table 7: Lennox GS Emissions Summary Table

Contaminant Name	CAS #	Averaging Period	Emission Rate (g/s)	Maximum POI Concentration (µg/m³)	POI Limit (µg/m³)	Limiting Effect	Percentage of POI Limit (%)
Based on the Maximum Operating Condition and Emissions that Lennox GS is Capable of While Firing RFO							
Nitrogen Oxides	10102-44-0	1-hour	911.5	839	400	Health	210%
		24-hour	911.5	147	200	Health	74%
Sulphur Dioxide	7446-09-5	1-hour	2,193	2026	100	Health	2026%
		Annual	43.9	6.4	10	Vegetation	64%
Sulphuric Acid	7664-93-9	24-hour	47	7.6	5	Health	152%
Based on Continuous Emission Monitoring Data for SO2 and NOx in 2025							
Calcium Hydroxide	1305-62-0	24-hour	5.0E-3	0.33	13.5	Corrosion	2%
Dioxins & Furans	-	24-hour	8.4E-8	1.4E-8	1.0E-7	Health	14%
Nitrogen Oxides	10102-44-0	1-hour	206	190	839	Health	23%
		24-hour	74	12	200	Health	6%
Sulphur Dioxide	7446-09-5	1-hour	664	613	2026	Health	30%
		Annual	664	1.9	10	Vegetation	19%
Sulphuric Acid	7664-93-9	24-hour	8.2	1.3	7.6	Health	18%
Suspended Particulate	N/A	24-hour	22.4	3.6	120	Health	3%

Appendix – 2: Key terms and *concepts*

Term	Description
ug/m³	Micrograms per cubic metre.
Sulphur Dioxide (SO_2)	These are air contaminants regulated under O.REG. 419/05, concentration SO_2 air standard took effect on July 1, 2023, and can be reviewed on the Environment Registry Ontario Website ERO# 013-0903.
Nitrogen Oxides (NO_X)	
Sulphuric Acid (H_2SO_4)	
Residual Fuel Oil (RFO)	Lennox GS boilers (combustion chambers) have been modified to allow for dual fuel operation (power generation on either RFO or NG). Potential exceedances of Schedule 3 air standards for SO_2 and H_2SO_4 will not occur when the station is operating on natural gas.
Natural Gas (NG)	
Station Operation	Refers to the power generated by combustion of RFO or NG fuel at Lennox GS. Expressed as MWh, megawatt hours. Megawatt Hours Gross (MWh Gross) – the total power generated by the station.
Calorific Value (kJ/L)	Refers to the energy content in the form of heat energy per unit of volume for a given fuel (RFO or NG).
Sulphur Content in Fuel	Refers to the amount of sulphur in RFO, expressed as % by weight. For example – for 0.85% sulphur content in RFO this means that for 1 kilogram (kg) of RFO fuel there is 0.0085kg (8.5 grams) of sulphur. The sulphur content in RFO used by Lennox GS directly affects the amount of SO_2 & H_2SO_4 present in station emissions. Thus, lowering the sulphur content present in RFO from 0.85% to 0.5% will effectively reduce the amount of SO_2 & H_2SO_4 emitted by the station under the same operating conditions.
Air Dispersion Model (CALPUFF)	CALPUFF is an advanced air quality modeling system used to predict ground level air contaminant concentrations from Lennox GS operations, for comparison against Schedule 3 air standards (O.REG. 419/05). CALPUFF is the air dispersion model of choice for Lennox GS, due to the model's ability to accurately assess the meteorological effects associated with the facilities location on the shore of Lake Ontario.
Exceedance of Air Standard	Point of Impingement (POI) concentrations refers to the maximum ground level concentration predicted by the CALPUFF model for SO_2, H_2SO_4 & NO_X. Frequency of exceedance refers to the number of hours (or days) in a year that the POI is predicted by CALPUFF to exceed the Schedule 3 air standards (O. Reg. 419/05) for both SO_2 & NO_X. For example, assuming all 4 units at Lennox are operating on maximum load on RFO with a 0.85% sulphur content, CALPUFF predicts exceedances of the 100µg/m3 SO_2 air standard 85 hours in a year, or 1% of the time. $\textit{Frequency of Exceedance} = \frac{85}{8760(\textit{\# of hours in a year})} * 100 = 1\%$

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